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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,488

04/27/2005

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EXAMINER

MOWLA, GOLAM

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,488	VAN HELDEN ET AL.	
	Examiner	Art Unit	
	GOLAM MOWLA	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-34 is/are pending in the application.
- 4a) Of the above claim(s) 28 and 32-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-27 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/29/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 28 and 32-34 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 05/01/2009.
2. Although Applicant argues in the reply submitted on 05/01/2009 that claims 20-34 read on Species A₁ and that claims 20-27 and 29-34, read on Species B₁, Examiner notes that claims 32-34 does not read on species B₁, rather it reads on species B₂ (VAREM layer including storage electrode and a hydrogen-impermeable layer along with other layers). Therefore, claims 32-34 are withdrawn from consideration as being part of non-elected species (B₂).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 20-27 and 29-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitation "the transmitting plate" in line 4 and "the sunlight-transmitting plate" in line 7. There is insufficient antecedent basis for one of these limitations in the claim. Applicant is suggested to change "the transmitting plate" in line

Art Unit: 1795

4 to "the light transmitting plate", or "the sunlight-transmitting plate" in line 7 to "the transmitting plate."

Claim 20 recites the limitation "said heat-conducting substrate" in line 5 and "the substrate" in lines 7-8. There is insufficient antecedent basis for one of these limitations in the claim. Applicant is suggested to change "said heat-conducting substrate" in line 5 to "the substrate", or "the substrate" in lines 7-8 to "said heat-conducting substrate."

Claim 27 recites the limitation "the hydrogen concentration" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vries et al. (WO 99/10934) in view of Lowery (US 3920413).

Art Unit: 1795

Regarding claims 20-24, De Vries discloses a device for converting solar energy into thermal energy (fig. 1 and 2; page 7, line 24 to page 9, line 23), comprising:

- a sunlight transmitting plate (4);
- a heat-conducting substrate (12), which is spaced from the transmitting plate by a predetermined distance, said heat-conducting substrate (12) having one or more channels (tubes/pipes 8) formed therein through which a heat transferring medium (fluid 18) is present;
- an absorption plate (7) disposed between the sunlight-transmitting plate (4 or 13) and substrate (12); and
- a layer of photovoltaic units (photovoltaic units comprising envelope 5 in which solar cells 3 are interspaced, and heat conducting layer 6) is present between the VAREM layer (7) and the sunlight-transmitting plate (4 or 13),
 - wherein the absorption plate (7) abuts against the substrate (12) and is present on a Trombe wall; and the layer of photovoltaic units abuts against the absorption plate (7).

However, the reference is silent as to whether the absorption plate is made of VAREM material wherein the optical properties of the VAREM material are variable between a reflecting condition and an absorbing condition in the optical part of the spectrum.

Art Unit: 1795

Lowery discloses a panel for absorbing solar thermal energy (see fig. 1 and 2, and col. 6, lines 35-38) wherein the panel absorbs heat and subsequently heat exchange in a heating or cooling operation (col. 2, lines 40-48).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized the panel of Lowery as the absorption plate of De Vries, because it allows to absorb heat and subsequently heat exchange in a heating or cooling operation, as shown by Lowery and also desired by De Vries.

Regarding claim 25, Examiner notes that the limitation “the sunlight-transmitting plate also transmits infrared radiation” recites the intended use and given no patentable weight. MPEP §2114. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Regarding claim 26, De Vries in view of Lowery further discloses that the VAREM layer is present on a Trombe wall (wall made by outer surface of black Nickel, layer 4, of Lowery).

Allowable Subject Matter

8. Claims 27 and 29-31 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to disclose whether the VAREM layer is built up of, in succession, a metal alloy, a solid electrolyte and an electrode, which VAREM layer is enveloped by a closed hydrogen atmosphere, wherein hydrogen concentration of the metal alloy is controlled by applying an electric voltage between the electrode and the

Art Unit: 1795

metal alloy. The closest prior art WO 99/10934 to De Vries et al. fails to disclose such a VAREM layer.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6369934, US 5384653, US 5377037, US 3985116, US 4642413, US 4663495, US 4413157 and US 4029853 are made of record.

Correspondence/Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GOLAM MOWLA whose telephone number is (571) 270-5268. The examiner can normally be reached on M-F, 0900-1700 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ALEXA NECKEL can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 10/509,488

Page 7

Art Unit: 1795

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/G. M./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795